

1 SECURITY SYSTEM AND METHODS

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3  
4 CROSS-REFERENCE TO RELATED APPLICATIONS

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6 This application claims the benefit of Provisional  
7 Application Serial Number 60/401,710, filed August 7, 2002.  
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10 Field of the Invention

11  
12 This invention relates to security systems and  
13 methods.  
14  
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16 Background of the Invention

17  
18 Security systems are becoming increasingly more  
19 important for protecting homes and businesses and for  
20 deterring illegal and unauthorized activities. In fact,  
21 home and office security systems are becoming commonplace  
22 in modern society. Some security systems are actually  
23 configured to provide warnings when an emergency situation,  
24 like a fire or an unauthorized or illegal entry, occurs in

1 the premises. Still other security systems are configured  
2 to be monitored over existing telephone lines by a remotely  
3 located security company, in which when an alarm condition  
4 occurs at the premises, such as an unauthorized or illegal  
5 entry or a fire, the security system transmits a signal to  
6 the security company via the telephone line, notifying the  
7 security company of the alarm condition. The security  
8 company then contacts the homeowner by telephone to verify  
9 whether the alarm condition is genuine or a false alarm.  
10 If the security company does not verify that the alarm  
11 condition is a false alarm, then the police or fire  
12 department is notified and dispatched to the premises.  
13 Although the art is replete with a vast array of security  
14 systems, needed is yet another that is easy to install,  
15 robust, highly reliable, inexpensive, and that is capable  
16 of collecting and dispatching useful information relating  
17 to security breaches.

## Summary of the Invention

1           The above problems and others are at least partially  
2  
3       solved and the above purposes and others realized in a  
4       security system embodying the principles of the invention  
5       in a preferred embodiment, in which the security system  
6       includes a transmitter for transmitting a data stream, and  
7       an audio/video camera module, coupled to the transmitter,  
8       for taking audio/video imagery of a location and converting  
9       the audio/video imagery to audio/video data for inclusion  
10      in the data stream.     The immediate embodiment further  
11      includes apparatus, coupled to the transmitter and the  
12      video camera module, adapted to detect a security breach at  
13      the location, activate the audio/video camera module and  
14      activate the transmitter to transmit a data stream  
15      including the audio/video data from the audio/video camera  
16      module.     Memory is also provided for storing audio/visual  
17      data generated by the audio/visual camera module.     In one  
18      embodiment, the transmitter is adapted to transmit a  
19      telephonic signal that carries that data stream.     In  
20      another embodiment, the transmitter is adapted to transmit  
21      a radio signal that carries the data stream.     In yet  
22      another embodiment, the transmitter is adapted to transmit  
23      a television signal that carries the data stream.     The  
24

1 immediate embodiment can incorporate a network of camera  
2 modules, if desired, each located at either the same  
3 location for redundancy and high reliability or at  
4 different locations for providing security at a plurality  
5 of designated locations. Camera module can be adapted and  
6 arranged to take only video data, if desired.

7  
8 Another security system embodiment consists of a  
9 transmitter for transmitting a data stream and placing a  
10 call to a monitoring facility, and an audio/video camera  
11 module, coupled to the transmitter, for taking audio/video  
12 imagery of a location and converting the audio/video  
13 imagery to audio/video imagery data for inclusion in the  
14 data stream. The immediate embodiment further includes  
15 apparatus, coupled to the transmitter and to the  
16 audio/video camera module, adapted to detect a security  
17 breach at the location, activate the audio/video camera  
18 module and activate the transmitter to place a call to a  
19 the monitoring facility and transmit a data stream  
20 including the audio/video data from the audio/video camera  
21 module. Memory is also provided for storing audio/visual  
22 data generated by the audio/visual camera module. In one  
23 embodiment, the transmitter is adapted to transmit a  
24 telephonic signal that carries that data stream. In

1 another embodiment, the transmitter is adapted to transmit  
2 a radio signal that carries the data stream. In yet  
3 another embodiment, the transmitter is adapted to transmit  
4 a television signal that carries the data stream. The  
5 immediate embodiment can incorporate a network of camera  
6 modules, if desired, each located at either the same  
7 location for redundancy or at different locations for  
8 providing security at a plurality of designated locations.  
9 Camera module can be adapted and arranged to take only  
10 video data, if desired.

11

12 Yet another security system embodiment consists of a  
13 transmitter for transmitting a data stream, and an  
14 audio/video camera module, coupled to the transmitter, for  
15 taking audio/video imagery of a location and converting the  
16 audio/video imagery to audio/video imagery data for  
17 inclusion in the data stream. First apparatus, coupled to  
18 the audio/video camera module, is adapted to detect a  
19 security threat and activate the audio/video camera module.  
20 Second apparatus, coupled to the transmitter and the  
21 audio/video camera module, is adapted to detect a security  
22 breach at the location, activate the audio/video camera  
23 module and activate the transmitter to transmit a data  
24 stream including the audio/video data from the audio/video

1 camera module. Memory is also provided for storing  
2 audio/visual data generated by the audio/visual camera  
3 module. In one embodiment, the transmitter is adapted to  
4 transmit a telephonic signal that carries that data stream.  
5 In another embodiment, the transmitter is adapted to  
6 transmit a radio signal that carries the data stream. In  
7 yet another embodiment, the transmitter is adapted to  
8 transmit a television signal that carries the data stream.  
9 The first apparatus is a motion detector. In another  
10 embodiment, the first apparatus is sound detector. The  
11 immediate embodiment can incorporate a network of camera  
12 modules, if desired, each located at either the same  
13 location for redundancy or at different locations for  
14 providing security at a plurality of designated locations.  
15 Camera module can be adapted and arranged to take only  
16 video data, if desired.

17

18 Still a further security system embodiment consists of  
19 a transmitter for transmitting a data stream and placing a  
20 call to a monitoring facility, and an audio/video camera  
21 module, coupled to the transmitter, for taking audio/video  
22 imagery of a location and converting the audio/video  
23 imagery to audio/video imagery data for inclusion in the  
24 data stream. First apparatus, coupled to the audio/video

1 camera module, is adapted to detect a security threat and  
2 activate the audio/video camera module. Second apparatus,  
3 coupled to the transmitter and to the audio/video camera  
4 module, is adapted to detect a security breach at the  
5 location, activate the audio/video camera module and  
6 activate the transmitter to place a call to a the  
7 monitoring facility and transmit a data stream including  
8 the audio/video data from the audio/video camera module.  
9 Memory is also provided for storing audio/visual data  
10 generated by the audio/visual camera module. In one  
11 embodiment, the transmitter is adapted to transmit a  
12 telephonic signal that carries that data stream. In  
13 another embodiment, the transmitter is adapted to transmit  
14 a radio signal that carries the data stream. In yet  
15 another embodiment, the transmitter is adapted to transmit  
16 a television signal that carries the data stream. The  
17 first apparatus is a motion detector. In another  
18 embodiment, the first apparatus is sound detector. The  
19 immediate embodiment can incorporate a network of camera  
20 modules, if desired, each located at either the same  
21 location for redundancy or at different locations for  
22 providing security at a plurality of designated locations.  
23 Camera module can be adapted and arranged to take only  
24 video data, if desired.

BRIEF DESCRIPTION OF THE DRAWINGS

Referring to the drawing:

FIG. 1 is a diagrammatic representation of a security system embodying the principles of the invention in a preferred embodiment; and

FIG. 2 is a schematic representation of the security system of FIG. 1 illustrating further details thereof.

1                    DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

2

3            A security system, constructed and arranged in  
4 accordance with the principle of the invention, includes a  
5 transmitter for transmitting a data stream, and an  
6 audio/video camera module, coupled to the transmitter, for  
7 taking audio/video imagery of a location and converting the  
8 audio/video imagery to audio/video data for inclusion in  
9 the data stream. A security breach detection apparatus,  
10 coupled to the transmitter and the video camera module, is  
11 adapted to detect a security breach at the location,  
12 activate the audio/video camera module and activate the  
13 transmitter to transmit a data stream including the  
14 audio/video data from the audio/video camera module. In  
15 response detecting a security breach, detection apparatus  
16 can be configured to also place a call to the monitoring  
17 facility for providing verbal communication ability between  
18 a person at the security system and personnel at the  
19 monitoring facility or with a person or people at a  
20 different location. Memory is also provided for storing  
21 audio/visual data generated by the audio/visual camera  
22 module. In one embodiment, the transmitter is adapted to  
23 transmit a telephonic signal that carries that data stream.  
24 In another embodiment, the transmitter is adapted to

1 transmit a radio signal that carries the data stream. In  
2 yet another embodiment, the transmitter is adapted to  
3 transmit a television signal that carries the data stream.  
4 The security system can also incorporate a security threat  
5 detection apparatus, coupled to the audio/video camera  
6 module, adapted to detect a security threat, such as motion  
7 or sound, and activate the audio/video camera module. The  
8 security threat detection apparatus can, if desired, also  
9 be configured to activate the transmitter in the manner  
10 like that of the security breach detection apparatus.

11

12 Turning now to the drawings, in which like reference  
13 characters indicate corresponding elements throughout the  
14 several views, attention is first directed to FIG. 1 in  
15 which there is seen a security system 10 including a series  
16 of electronically interconnected elements, namely, a  
17 transmitter 11, a camera module 12, apparatus 13 adapted  
18 and arranged to detect a security breach, and memory 14,  
19 each of which is known per se as a separate unit. The  
20 electronic coupling between transmitter 11, camera module  
21 12, apparatus 13 and memory 14 is preferably by way of  
22 conventional hard wiring, although conventional wireless  
23 interconnections can be used, whether between certain ones  
24 of the elements of security system 10 or all of the

1 elements of security system 10. Transmitter 11 is adapted  
2 and arranged to transmit a data stream, and camera module  
3 12 is adapted and arranged to take audio/video imagery of a  
4 location and converting the audio/video imagery to  
5 audio/video data for inclusion in the data stream.  
6 Apparatus 13 is adapted and arranged to detect a security  
7 breach (i.e., the breaking of a window; an opening of a  
8 window; an opening of a door; a sound of a predetermined  
9 decibel level; a scream; a gunshot, etc.) at a selected  
10 location, and, in response to detecting a security breach,  
11 activate camera module 12, and activate transmitter 11 to  
12 transmit a data stream including the audio/video data from  
13 camera module 12. Preferably, the audio/video data  
14 generated by camera module 12 is stored into memory 14 for  
15 later use and, if desired, prior to its introduction into  
16 the data stream. In one embodiment, transmitter 11 is  
17 adapted to transmit a telephonic signal, that carries the  
18 data stream, over a publicly switched telephone network  
19 (PSTN). In another embodiment, transmitter 11 is adapted  
20 to transmit a radio signal, that carries the data stream,  
21 in which the radio signal is preferably a cellular radio  
22 signal sent over an existing cellular phone infrastructure.  
23 Other forms of radio communication can be used, consistent  
24 with the teachings of the invention. In yet another

1 embodiment, transmitter 11 is adapted to transmit a  
2 television signal, that carries the data stream, such as a  
3 closed circuit television signal.

4  
5 Security system 10 is to be installed so as to provide  
6 security at a fixed location where security is desired,  
7 such as at a home, a business, a vehicle (whether a car, a  
8 recreational vehicle, a boat) and, more particularly, at a  
9 point of entry to a home or a business or a vehicle, such  
10 as a door, a window, or at any location at which security  
11 is desired. In a preferred embodiment, camera module 12 is  
12 affixed at a location so that when activated takes  
13 audio/video imagery of a desired location, such as within a  
14 room, within a vehicle, at point of entry such as at a  
15 window, at a door, etc. Transmitter 11, apparatus 13, and  
16 memory 14, can be mounted proximate camera module 12, or  
17 elsewhere, such as at a concealed or secret location.  
18 Security system 10 can be powered from a dedicated power  
19 source such as by hard wiring, or a discrete power source,  
20 such as one or more lithium-cadmium batteries or any other  
21 battery form. In preferred embodiment, security system 10  
22 is powered from a dedicated power source and incorporates a  
23 discrete power source, as explained, for providing security  
24 system 10 with backup power in the event that the dedicated

1 power source is disabled. Preferably, security system 10  
2 incorporates a control panel 20, which enables a user to  
3 "ARM" or activate security system 10 and "DISARM" or  
4 deactivate security system during periods of nonuse, and,  
5 for instance, define the operating parameters of security  
6 system 10 as may be provided by software instructions  
7 housed in memory, such as memory 14 or other memory. The  
8 provision of control panels, such as control panel 20, for  
9 use in operating, and controlling the operation of,  
10 security systems is well known. Control panel 20 can be  
11 mounted at any selected location, as may be desired.

12

13       Activation of security system 10 occurs when apparatus  
14 13 detects a security breach. In response to apparatus 13  
15 detecting a security breach, security system 10 is  
16 responsive and activates camera module 12 and transmitter  
17 11 to transmit a data stream including the audio/video data  
18 from camera module 12, and stores the audio/video data from  
19 camera module 12 in memory 14. The audio/video data is  
20 intended to capture the security breach as it is taking  
21 place, providing audio and visual information as to the  
22 perpetrator(s) of the security breach, the nature of the  
23 security breach, etc.

1       When activated, transmitter 11 establishes a  
2 communication link with a remote monitoring facility 21, in  
3 accordance with the principle of the invention. As  
4 previously mentioned, transmitter 11 is adapted to transmit  
5 a telephonic signal, that carries the data stream, whether  
6 by way of a PSTN or by way of a wireless telephonic  
7 connection, namely, a cellular radio telephonic connection.  
8 In this regard, transmitter 11 is preferably configured to  
9 dial a predetermined phone number, or phone numbers, to  
10 establish a telephonic communication link with monitoring  
11 facility 21 over which the audio/visual data provided by  
12 camera module 12 is sent. Preferably, monitoring facility  
13 21 has a receiver 22, associated with storage 23, which  
14 takes the phone call from transmitter 11 and receives and  
15 stores the audio/visual data from camera module 12 in  
16 storage 23, which can be accessed by monitoring facility 21  
17 and displayed on a monitor 24 or other display device.  
18 Security system 10 is furnished with an identification code  
19 or number or signature or other designation, which is sent  
20 to receiver 22 over the communication link between  
21 transmitter 11 and receiver 22, which identifies security  
22 system 10 and its location.

23

24       In the embodiment in which transmitter 11 is adapted

1 to transmit a television signal, that carries the data  
2 stream, such as a closed circuit television signal, it is  
3 to be understood that receiver 22 is adapted and arranged  
4 to receive and accept the television signal from  
5 transmitter 11 and store the audio/visual data from camera  
6 module 12 in storage 23, which can be accessed by  
7 monitoring facility 21 and displayed on a monitor 24 or  
8 other display device. The identification code or number or  
9 signature other designation of security system 10 is also  
10 sent to receiver 23 over the television signal in this  
11 embodiment.

12

13 Security system 10 is useful in that it functions to  
14 notify monitoring facility 21 of a security breach at a  
15 location specified by the identification assigned to  
16 security system 10 and send monitoring facility audio/video  
17 imagery of the security breach taking place, which is  
18 highly desirable because it not only can inform the  
19 monitoring facility of the nature of the security breach  
20 but also any perpetrator(s) carrying out the security  
21 breach. After the monitoring facility 21 determines the  
22 nature of the security breach with the aid of the  
23 audio/video data, monitoring facility 21 can then take the  
24 necessary action to render aid, such as notifying and

1    dispatching, fire, police, medical, ambulatory aid, etc..

2

3        In accordance with the invention, security system 10  
4    can also be furnished with apparatus 30 for detecting a  
5    security threat, such as a motion detector adapted and  
6    arranged to detect motion at a desired location. In this  
7    permutation of the invention, apparatus 30 is installed at  
8    a selected location at which motion is desired to be  
9    monitored and detected, such as at a point of entry or at  
10   some other selected location, which is intended to be the  
11   same location at which camera module 12 is mounted.  
12   However, apparatus 30 can be disposed at a location that is  
13   different from the location at which camera module 12 is  
14   located, such as at an exterior gate, entryway, driveway  
15   access, etc. Apparatus 30 is coupled to transmitter 11,  
16   and when activated is operative for detecting motion. In  
17   response to apparatus 30 detecting motion, security system  
18   10 is responsive and activates camera module 12, which  
19   takes audio/video imagery of the location for the purpose  
20   of capturing audio/visual imagery of whatever caused the  
21   motion which was detected by apparatus 30. Camera module  
22   12 is adapted and arranged to convert the audio/video  
23   imagery into audio/video data capable of being transmitted  
24   over a data stream and also stores the audio/video data in

1 memory 14. The motion detected by apparatus 30 could  
2 possibly be one or more perpetrators approaching the  
3 location for the purpose of engaging in a security breach,  
4 such as unauthorized or illegal entry, etc. Apparatus 30  
5 can, if desired, be configured not only to activate camera  
6 module 12 in response to detecting motion, but also  
7 transmitter 11 in the manner previously described for  
8 sending audio/video data collected by camera module 12 to  
9 monitoring facility 21. Although apparatus 30 is  
10 preferably a motion sensor, it can be a sensor for  
11 detecting sound or particular types of sound or levels of  
12 sound, a heat sensor, etc., or other device adapted and  
13 arranged to detect one or more particular kinds of stimuli  
14 that is indicative not of a security breach but of a  
15 security threat.

16

17 Turning to FIG. 2, a schematic representation of  
18 security system 10 is depicted and further details will now  
19 be discussed including preferred teachings concerning  
20 connections and the orientation of various interconnected  
21 components and associated operation. A microprocessor 500,  
22 which is part of security system 10 and incorporated, for  
23 instance, with transmitter 11 or perhaps with control panel  
24 20, controls the operation of security system 10 in

1 accordance with preprogrammed software instructions, and  
2 the execution and data flow of security system 10, and the  
3 operation of security system 10 in response to apparatus 13  
4 detecting a security breach and apparatus 30 detecting a  
5 security threat. The first time power is applied to  
6 security system 10, microprocessor 500, using electrical  
7 connection 700, accesses and initializes/reads instructions  
8 from a software program stored in memory 14. The software  
9 instructions are executed by microprocessor 500, and direct  
10 the actions and operation of microprocessor 500. When  
11 microprocessor 500 stores status information or other data  
12 into memory 14, microprocessor 500 sends a memory storage  
13 address and the data to be stored across electrical  
14 connection 800 to memory 14 for storage.

15

16 Apparatus 13 is adapted to periodically or  
17 continuously send status information to transmitter  
18 receiver 300 across connection 200. This status  
19 information is then transferred from receiver 300 across  
20 connection 200. This status information is then  
21 transferred from receiver 300 across connection 400 to  
22 microprocessor 500. The software program executed by  
23 microprocessor 500 uses this information to determine what  
24 action(s) to take. A triggering of apparatus 13, caused by

1 one or more events, causes microprocessor 500 to perform  
2 actions, such as communicate with control panel 20, command  
3 an alarm to sound if there is one provided, or start a  
4 timer within microprocessor 500, in which after a  
5 predetermined period of time microprocessor 500 initializes  
6 or otherwise activates camera module 12 and/or transmitter  
7 11, and this is also the case with a triggering of  
8 apparatus 30, which sends information to receiver 300 via  
9 connection 200'. Microprocessor 500 uses connection 130 to  
10 command driver circuitry 100 to communicate with apparatus  
11 13 across connection 120, in addition to control panel 20  
12 and any alarm device. When microprocessor 500 determines  
13 that due to an event triggered by apparatus 13 it is  
14 necessary to communicate with monitoring facility 21,  
15 microprocessor 500 sends messages, such as dialing data,  
16 location information, and specific status, across  
17 connection 900 to transmitter 11, which, for instance, is  
18 responsive and places a telephone call to monitoring  
19 facility 21 across connection 270. Microprocessor 500 can  
20 be considered part of apparatus 13, if desired, and also  
21 apparatus 30.

22

23 Camera module 12 incorporates compression chip 340,  
24 which receives command and control information from

1 microprocessor 500 across connection 220 for acquisition of  
2 audio/video imagery and data and the positioning of camera  
3 module 12. Connection 230 is the path used by compression  
4 chip 340 to send status information and other data to  
5 microprocessor 500. It is to be understood that  
6 compression chip 340 is considered part of camera module  
7 12, whether it is actually physically incorporated with or  
8 at camera module 12 or at a different location, such as at  
9 control panel 20, transmitter 11, etc. Also, although one  
10 compression chip is disclosed, the invention may  
11 incorporate a plurality of compression chips, including,  
12 for instance, one or more video compression chips and one  
13 or more audio/video compression chips.

14

15 Audio/video signals are received by compression chip  
16 340 from camera module 12 across connection 210. This data  
17 is manipulated within compression chip 340 using well known  
18 audio/video compression techniques. This compressed  
19 audio/video data is stored in memory 14 using connection  
20 160. Compression chip 340 thus takes audio/visual imagery  
21 taken by camera module 12 and converts it into audio/visual  
22 data capable of being transmitted in a data stream as  
23 discussed supra. Compression chip 340 can be considered  
24 part of camera module 12, if desired.

1        Although audio/visual imagery taken by camera module  
2 12 is stored in memory 14, it can be maintained by other  
3 memory or storage. When initiated by microprocessor 500  
4 using, for instance, connection 800, microprocessor 500, in  
5 a particular embodiment, accesses memory 14 and sends  
6 stored audio/video imagery to compression chip 340 across  
7 connection 170 for conversion into audio/visual data  
8 capable of being transmitted into a data stream. If  
9 desired, this audio/video data may be sent across  
10 connection 150 to a monitor 140 of security system 10.  
11 Compression chip 340 can receive audio/visual imagery  
12 directly from camera module 12 if desired, in which after  
13 conversion the audio/video data capable of being  
14 transmitted in a data stream is sent to memory 14 for  
15 storage.

16

17        A wireless video camera input 180 can be used with  
18 security system 10 so as to establish a wireless connection  
19 to camera module 12. In this aspect of the invention,  
20 wireless audio/video information is sent to wireless video  
21 processing circuitry 380 via connection 190 where, for  
22 instance, it is transformed into digital data for use by  
23 the video data compression chip 340. The data is sent to  
24 compression chip 340 from wireless video processing

1 circuitry 380 across, for instance, connection 201. If  
2 microprocessor 500 determines a security breach as provided  
3 by impulses provided by apparatus 13, it commands  
4 compression chip 340, using connection 220, to begin  
5 capture of audio/video data at the locale of the breach.  
6 This data is then transferred to memory 14 by way of  
7 connection 160. When a frame of data has been sent to  
8 memory 14, compression chip 340 notifies microprocessor 500  
9 that a frame is complete across connection 230.  
10 Microprocessor 500 is responsive and sends a command across  
11 connection 800 to memory 14 that directs memory 14 to  
12 retrieve this frame of data and send it across connection  
13 700 to microprocessor 500. Microprocessor 500 formats this  
14 frame of data for transmission across connection 290 to  
15 transmitter 11, which sends this data to monitoring  
16 facility 21 across, for instance, the airwave (e.g.,  
17 wireless) indicated by connection 270. Multiple  
18 audio/video input devices 390 and/or 180 may be  
19 incorporated into security system 10 using the same  
20 methodology. As previously intimated, it is to be  
21 understood that communication between transmitter 11 and  
22 monitoring facility 21 (depicted only in FIG. 1) can be  
23 made over PSTN 1000 via connection 1001.

1       And so the invention provides systems and methods for  
2 sending compressed audio/video data over existing  
3 telephonic infrastructures, using ground telephonic  
4 communication pathways and/or wireless telephonic  
5 communication pathways, to an external monitoring facility,  
6 such as monitoring facility 21. Given that the invention  
7 exploits telephonic pathways for use in transmitting a data  
8 stream, the invention also includes the provision of  
9 establishing a two-way telephonic communication link  
10 between security system 10, namely, transmitter 11, and  
11 monitoring facility 21. Also, with the ability to send  
12 audio and audio/video data to an external monitoring  
13 facility center, the audio and audio/video can be  
14 associated with each other.

15

16       As a matter of example, when microprocessor 500  
17 determines that it is necessary to communicate with  
18 monitoring facility 21, a command set is sent across, for  
19 instance, connection 290 to transmitter 11, which sends  
20 radio signals containing the protocol appropriate for its  
21 type to monitoring facility 21 using wireless connection  
22 260. Monitoring facility 21 may return data commands or  
23 audio voice information to transmitter 11 using, for  
24 instance, wireless connection 400.

1        When audio data from monitoring facility 21 enters  
2 security system 10 via transmitter 11, in a particular  
3 embodiment it is transferred across connection 250 to an  
4 audio input circuit 370 where the information is prepared  
5 to be sent to, for instance, an audio speaker 320 of  
6 security system 10. The audio signals are sent from the  
7 audio input circuit 370 across connection 310 audio speaker  
8 320. When it is necessary to provide audio from the  
9 security system 10 to monitoring facility 11, or other  
10 designation, an audio microphone 330 of security system 10  
11 is used to send audio signals across connection 300 to  
12 audio output circuitry 360. Audio signals are prepared for  
13 transmission by transmitter 11 and are sent, for instance,  
14 over connection 240. Transmitter 11 then sends the radio  
15 frequency audio signals to monitoring facility 21, or other  
16 designation, over connection 260.

17

18        The invention has been described above with reference  
19 to a preferred embodiment. However, those skilled in the  
20 art will recognize that changes and modifications may be  
21 made to embodiment without departing from the nature and  
22 scope of the invention. For instance, although camera  
23 module 12 is adapted and arranged to collect audio/video  
24 imagery, it can be configured to collect only video

1 imagery, if desired, in which compression chip 340 would be  
2 adapted and arranged to receive video imagery from camera  
3 module 12 and convert/compress the video imagery into video  
4 data capable of being transmitted in a data stream.

5  
6       Rather than just one camera module 12, security system  
7 10 can incorporate a network of camera modules, if desired,  
8 each positioned at either the same location for redundancy  
9 or for providing different imagery perspectives or at  
10 different locations for providing security at a plurality  
11 of designated locations. Consistent with this, the  
12 invention can also incorporate a plurality of apparatus 13  
13 (the security breach detection apparatus) for providing the  
14 ability to detect security breaches at a plurality of  
15 different locations, and a plurality of apparatus 30 (the  
16 security threat detection apparatus) for providing the  
17 ability to detect security threats at a plurality of  
18 locations. Having a plurality of camera modules, security  
19 breach detection apparatus (e.g., apparatus 13), and  
20 security threat detection apparatus (e.g., apparatus 30) in  
21 a security system constructed and arranged in accordance  
22 with the principle of the invention, provides a wide range  
23 of security coverage, and/or redundancy for fail-safe  
24 and/or highly reliable operation. It is to be understood,

1 that apparatus 13 and apparatus 30 can, if desired, be the  
2 same apparatus, and that a plurality of such apparatus can  
3 be used in a security system constructed and arranged in  
4 accordance with the invention. Also, memory 14 can  
5 maintain map data of the location at which security system  
6 10 is maintained, that can be sent in the data stream to  
7 monitoring facility 21 identifying by way of a map the  
8 identification of the location of the house, business,  
9 vehicle, boat, plane, etc., at which the security breach or  
10 threat is taking place. As a matter of example, the map  
11 can include a floor plan of the house or business at which  
12 the security system is located, and a designation of the  
13 location at which the security breach took place, such as  
14 at a particular door, a particular window, etc. This  
15 aspect is particularly advantageous when security system 10  
16 is configured with a plurality of camera modules each  
17 located at a different location, in which a security breach  
18 at each location can be designated by way of a specified  
19 map adapted to be transmitted in the data stream  
20 facilitated by security system 10. The map can be stored  
21 at a monitoring facility, if desired, and the security  
22 system can send identifying information for display on the  
23 map.

1        Various further changes and modifications to the  
2        embodiment herein chosen for purposes of illustration will  
3        readily occur to those skilled in the art. To the extent  
4        that such modifications and variations do not depart from  
5        the spirit of the invention, they are intended to be  
6        included within the scope thereof.

7  
8        Having fully described the invention in such clear and  
9        concise terms as to enable those skilled in the art to  
10       understand and practice the same, the invention claimed is: